

Service Manual

**CIRCUIT DESCRIPTIONS
REPAIR & ADJUSTMENTS**



**ORDER NO.
ARP-127-0**

AUDIO DIGITAL TIMER

DT-530

MODEL DT-530 COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
S	110V, 120V, 220V and 240V (Switchable)	General export model
S/G	110V, 120V, 220V and 240V (Switchable)	U.S. military model
YB	240V only	United kingdom model
NE	220V only	Europe model

- This service manual is applicable to the DT-530/KU. When repairing the DT-530/S, S/G, YB, NE, please see page 11.

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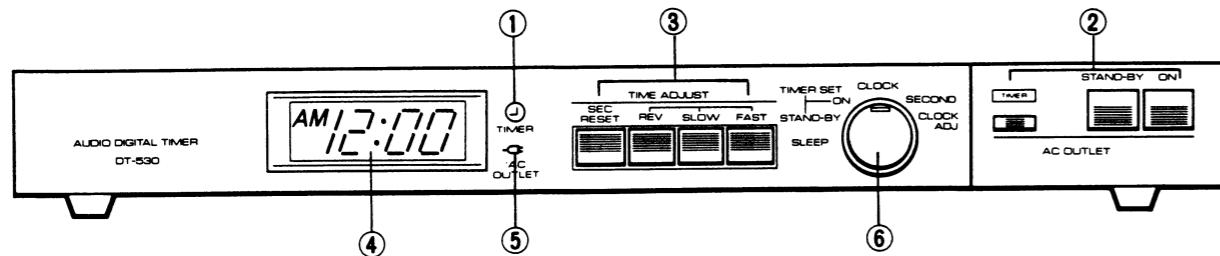
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3. FRONT PANEL FACILITIES



① TIMER INDICATOR ()

This lights when the AC OUTLET-TIMER selector is depressed.

② AC OUTLET SELECTORS

These switch on and off the power flowing to the rear panel AC OUTLET.

TIMER: Used to switch ON and OFF the power of the connected audio components with the timer operation.

STAND-BY: Used to switch off the power of the connected audio components regardless of the timer operation.

ON: Used to switch on the power of the connected audio components regardless of the timer operation.

④ TIME DISPLAY

The time is displayed as it relates to the mode selector or TIME ADJUST switch settings in the following table.

Display	Example of display	Mode selector	TIME ADJUST switch
Time until sleep operation is due to go OFF.	1:30 1 hr 30 min.	SLEEP	FAST SLOW
Display of OFF time set by timer.	AM 8:00	TIMER SET-STAND-BY	FAST SLOW REV
Display of ON time set by timer	PM 7:30	TIMER SET-ON	FAST SLOW REV
Display of present time	PM 5:38	CLOCK	—
Display of seconds and rightmost digit of present time minute	8:25 8 min. 25 sec.	SECOND	—
Display for adjusting seconds correctly of present time	5:00 5 min. 00 sec.	SEC RESET	SEC RESET
Display for adjusting hours and minutes of present time	AM 12:05		
		CLOCK ADJUST	FAST SLOW REV

③ TIME ADJUST SWITCHES

These are used to adjust the time/displayed times in line with the setting of the mode selector.

SEC RESET: When this switch is depressed with the mode selector in the SECOND position, the second display of the present time is reset to 0:00 and when released the seconds are counted up from 0:00 → 0:1 → 0:2 → etc., and the rightmost minute digit and seconds are displayed.

REV: When the FAST or SLOW switch is depressed while this switch is in the depressed position, the displayed time is reversed rapidly or slowly. (This function does not work when the sleep timer function is set.)

SLOW: When this switch is depressed, the displayed time is forwarded slowly.

FAST: When this switch is depressed, the displayed time is forwarded rapidly.

NOTE:

When the unit's power plug is connected to a household AC outlet, "AM 12:00" or "0:00" time display will wink. It also winks when there has been a power failure while the unit was working and the power has been restored.

⑤ AC OUTLET INDICATOR ()

This lights when power is being supplied to the AC OUTLET on the rear panel.

⑥ MODE SELECTOR

This is used to select the timer's function.

SLEEP: Used to set the operating time (1 minute to 1 hour 59 minutes) until the power of the audio components operating is to be set OFF.

TIMER SET-STAND-BY: Used to set the time at which the power to the connected audio components is set OFF.

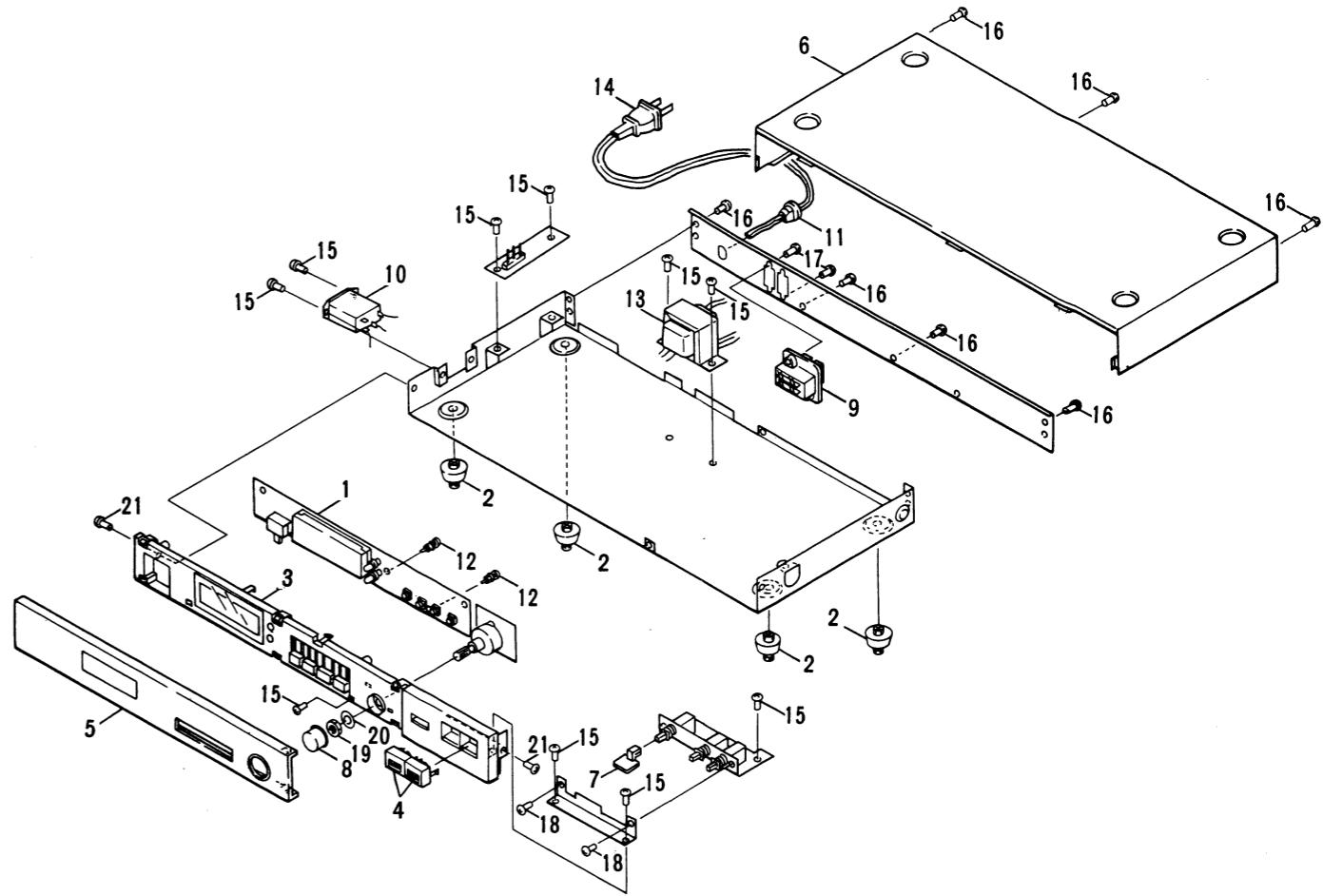
TIMER SET-ON: Used to set the time at which the power to the connected audio component is set ON.

CLOCK: Used to display the present time (hours & minutes).

SECOND: Used to adjust the seconds of the present time and check the seconds of the present time.

CLOCK ADJ: Used to adjust the clock to the present time.

4. EXPLODED VIEW



NOTES:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.

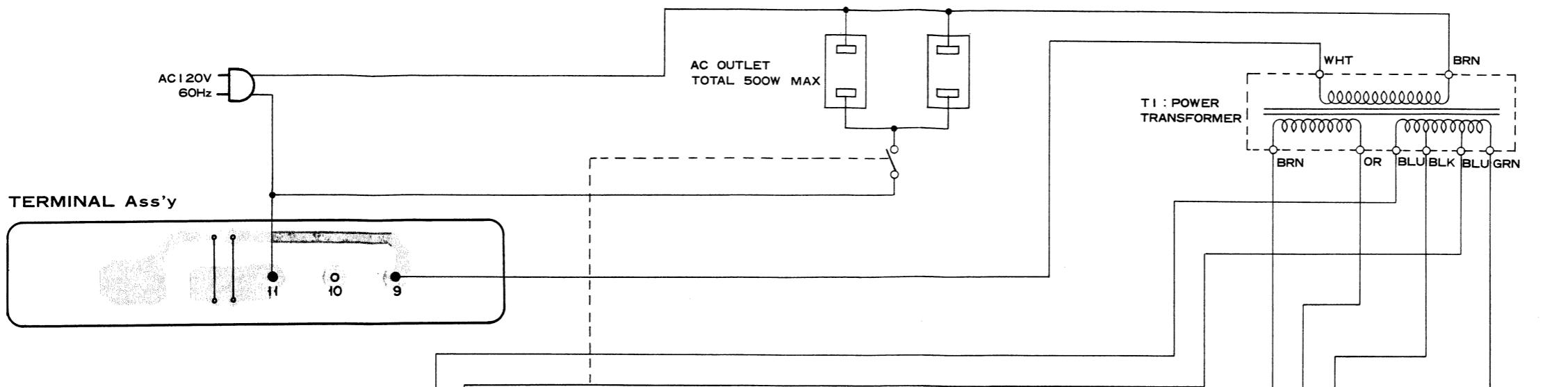
★★ GENERALLY MOVES FASTER THAN ★
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Parts List

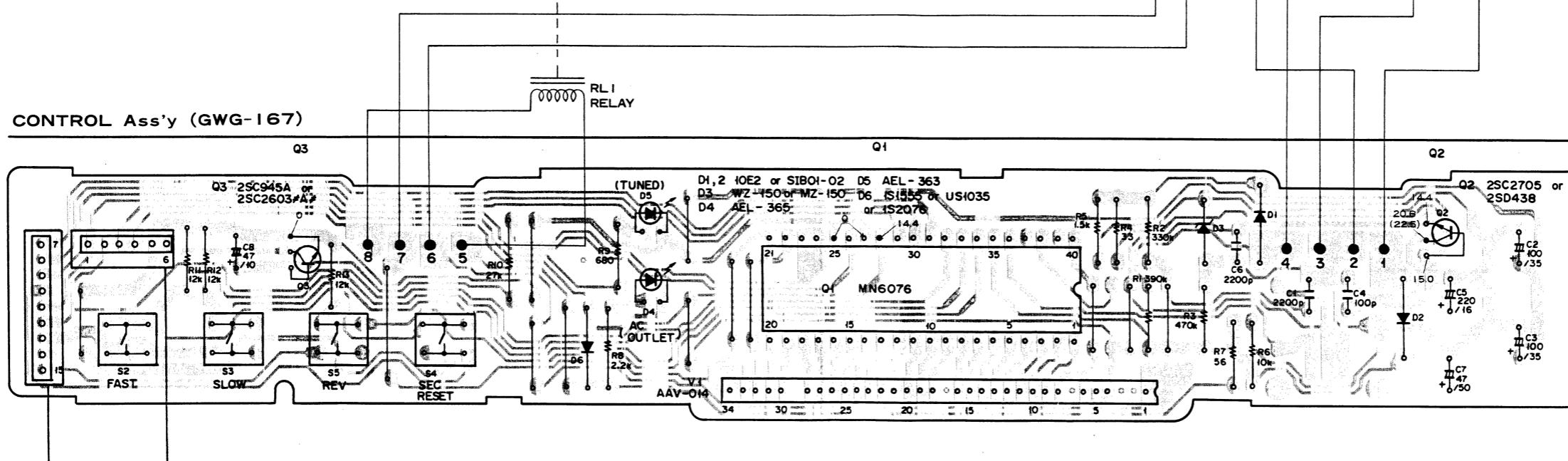
Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
1.	GWG-167		Control assembly	16.	BBT30P080FZK		Screw
2.	AEC-903		Foot assembly	17.	MTZ30P100FZK		Screw
3.	ANM-181		Panel base assembly	18.	PMZ30P060FZB		Screw
4.	AAD-624		Function knob	19.	NK90FUC		Nut
5.	ANM-157		Cover	20.	WA92F140U050		Washer
6.	ANE-387		Bonnet case	21.	BBZ30P060FZK		Screw
7.	AAD-456		Function knob A				
8.	AAB-288		Knob				
9.	AKP-040		AC socket (AC OUTLETS)				
⚠ ★★ 10.	ASR-506		Relay				
⚠ 11.	AEC-327		Strain relief				
12.	AEC-525		Nylon rivet				
⚠ ★ 13.	ATT-722		Power transformer (120V)				
14.	ADG-052		AC power cord				
15.	VBZ30P060FMC		Screw				

5. P.C.BOARD CONNECTION DIAGRAM

A

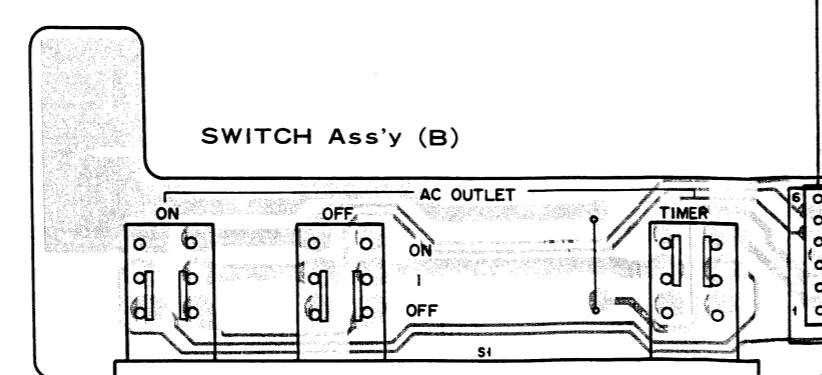
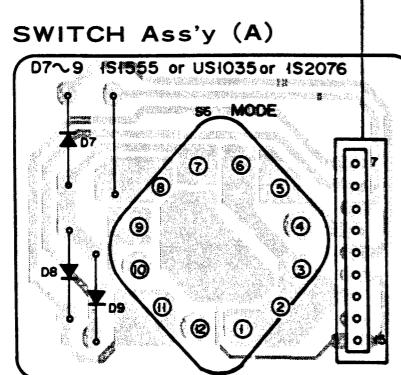
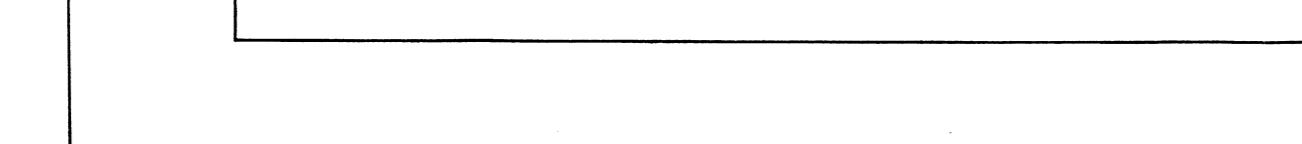


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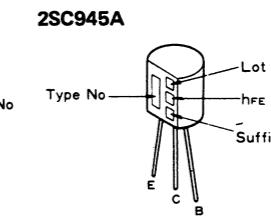
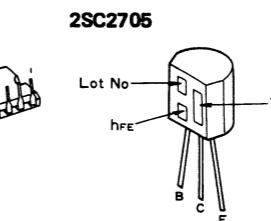
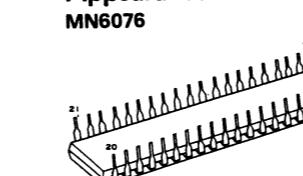


B

B

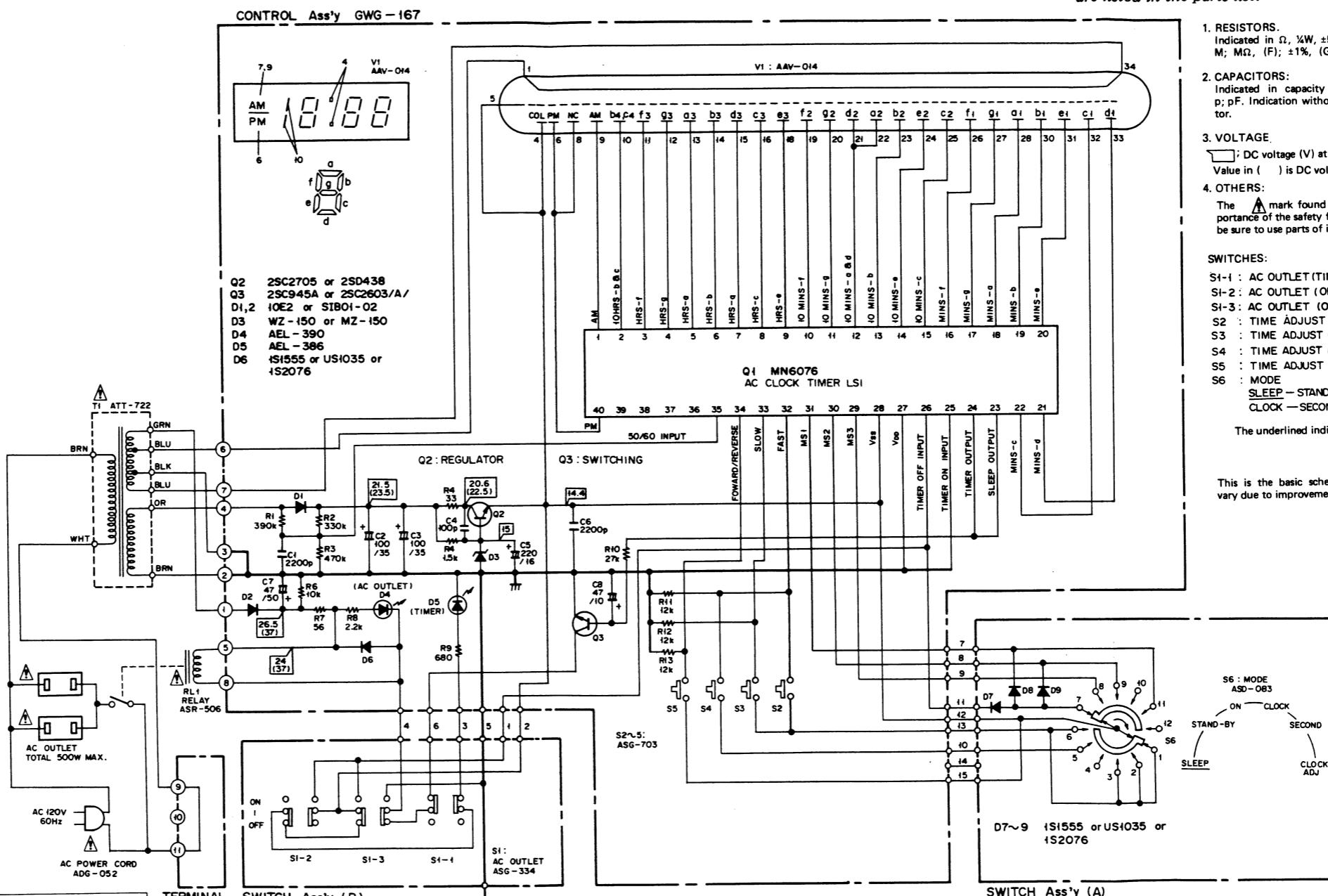


Appearance of Transistors and ICs



6. SCHEMATIC DIAGRAMS

A



1. RESISTORS:
Indicated in Ω , $\frac{1}{2}W$, $\pm 5\%$ tolerance unless otherwise noted k; $k\Omega$, M; $M\Omega$, (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF . Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE:
— : DC voltage (V) at AC OUTLET ON.
Value in () is DC voltage at AC OUTLET OFF.

4. OTHERS:
The **A** mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

SWITCHES:
 S1-1 : AC OUTLET (TIMER) ON - OFF
 S1-2 : AC OUTLET (OFF) ON - OFF
 S1-3 : AC OUTLET (ON) ON - OFF
 S2 : TIME ADJUST (FAST) ON - OFF
 S3 : TIME ADJUST (SLOW) ON - OFF
 S4 : TIME ADJUST (SEC RESET) ON - OFF
 S5 : TIME ADJUST (REV) ON - OFF
 S6 : MODE
 SLEEP - STAND-BY — ON —
 CLOCK - SECOND — CLOCK ADJ

The underlined indicates the switch position.

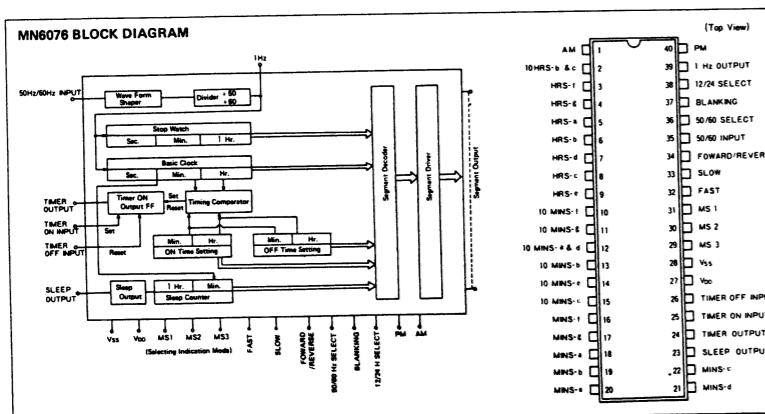
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

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D



7. PARTS LIST

NOTES:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	56 × 10 ¹	561 RD%PS 561 J
47kΩ	47 × 10 ³	473 RD%PS 473 J
0.5Ω	0R5	RN2H 0R5 K
1Ω	010	RS1P 010 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	562 × 10 ¹	5621 RN%SR 5621 F
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- The \triangle mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks $\star\star$ and \star .
- $\star\star$ GENERALLY MOVES FASTER THAN \star
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

CONTROL ASSEMBLY (GWG-167)

CAPACITORS

Mark	Part No.	Symbol & Description
CKDYB 222K 50	C1, C6	
CCDSL 101J 50	C4	
CEA 470M 10L	C8	
CEA 470M 50L	C7	
CEA 101M 35L	C2, C3	
CEA 221M 16L	C5	

RESISTORS

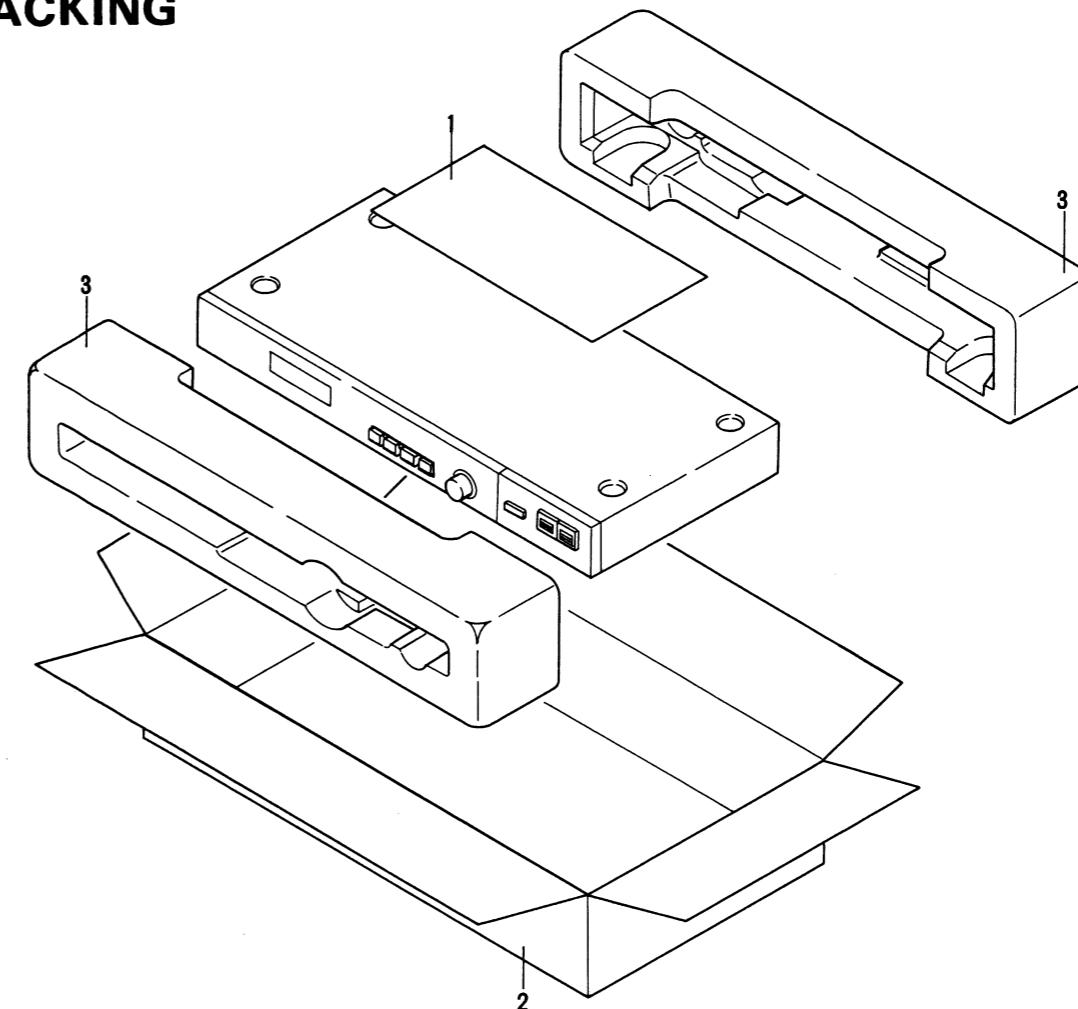
NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
RD%PM 000J	R1-R13	

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
$\star\star$	MN6076	Q1
$\star\star$	2SC2705 (2SD438)	Q2
$\star\star$	2SC945A (2SC2603)	Q3
\star	10E2 (SIB01-02)	D1, D2
\star	WZ-150 (MZ-150)	D3
\star	AEL-390	D4
\star	AEL-386	D5
\star	1S1555 (US1035) (1S2076)	D6

8. PACKING



PACKING

Mark	No.	Part No.	Description
1.	ARB-489		Operating instructions
2.	AHE-032		Packing case
3.	AHA-318		Front rear pad
4.			
5.			

3. PARTS LIST

NOTES:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω 56 \times 10¹ 561..... RD%PS 561 J
47k Ω 47 \times 10³ 473..... RD%PS 473 J
0.5 Ω 0R5 RN2H 0R5 K
1 Ω 010 RS1P 010 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω 562 \times 10¹ 5621 RN%SR 5621 F

- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

- For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.

★★ GENERALLY MOVES FASTER THAN ★

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

■ CONTROL ASSEMBLY (GWG-169)

CAPACITORS

Mark	Part No.	Symbol & Description
	CKDYB 222K 50	C1, C6
	CCDSL 101J 50	C4
	CEA 470M 10L	C8
	CEA 470M 50L	C7
	CEA 101M 35L	C2, C3
	CEA 221M 16L	C5

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	PD%PM □□□J	R1-R13

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	MN6076	Q1
★★	2SC2705 (2SD438)	Q2
★★	2SC945A (2SC2603)	Q3
★	10E2 (SIB01-02)	D1, D2
★	WZ-150 (MZ-150)	D3
★	AEL-390	D4
★	AEL-386	D5
★	1S1555 (US1035) (1S2076)	D6

■ CONTROL ASSEMBLY (GWG-168)

CAPACITORS

Mark	Part No.	Symbol & Description
	CKDYB 222K 50	C1, C6
	CCDSL 101J 50	C4
	CEA 470M 10L	C8
	CEA 470M 50L	C7
	CEA 101M 35L	C2, C3
	CEA 221M 16L	C5

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	PD%PM □□□J	R1-R13

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	MN6076	Q1
★★	2SC2705 (2SD438)	Q2
★★	2SC945A (2SC2603)	Q3
★	10E2 (SIB01-02)	D1, D2
★	WZ-150 (MZ-150)	D3
★	AEL-390	D4
★	AEL-386	D5
★	1S1555 (US1035) (1S2076)	D6

SWITCHES, OTHER

Mark	Part No.	Symbol & Description
★★	ASG-703	S2-S5
★	AAV-013	V1 Florescent indicator tube

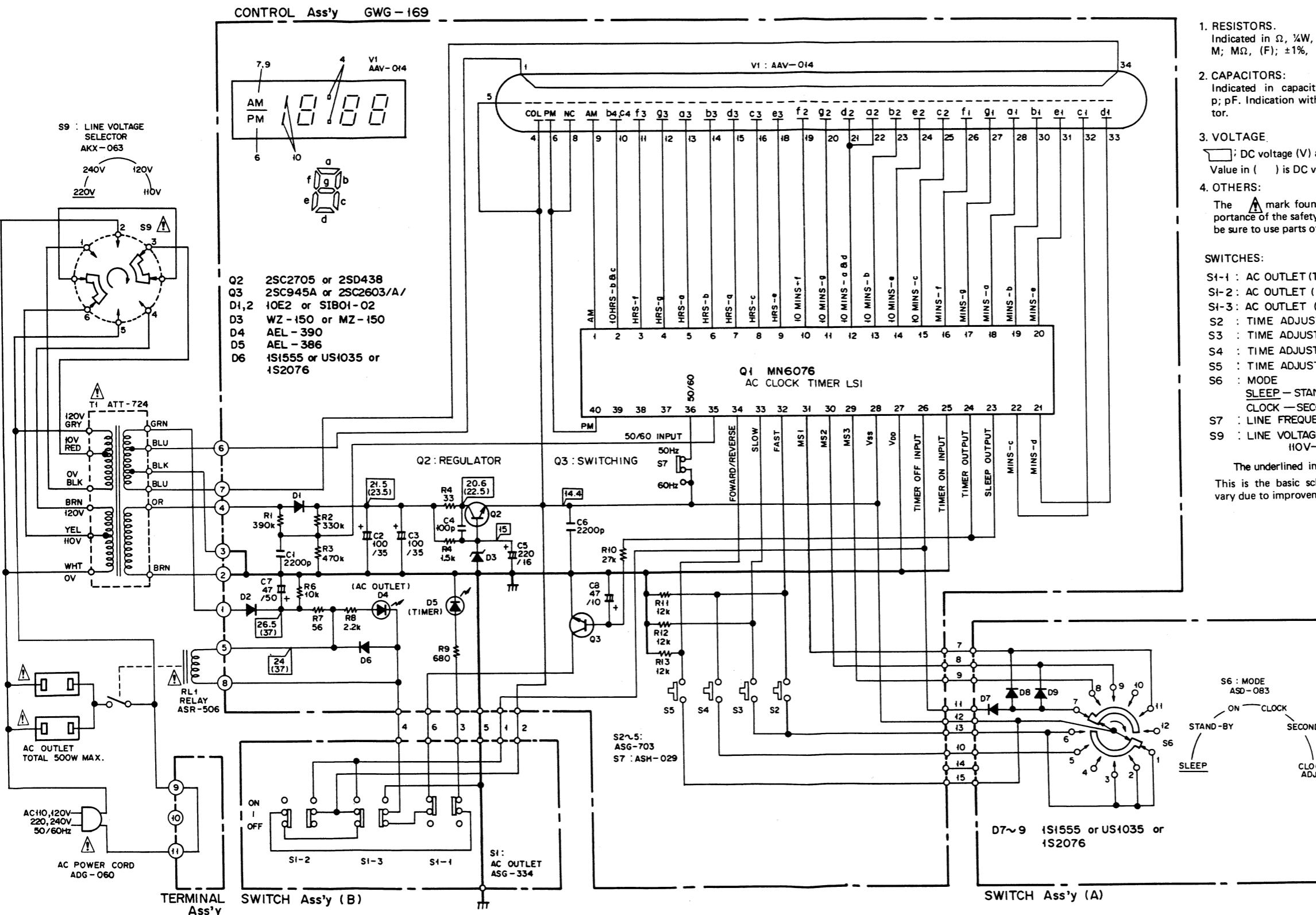
4. SCHEMATIC DIAGRAMS

■ S, S/G TYPES

NOTE:

The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

A



B

1. RESISTORS. Indicated in Ω , $\frac{1}{4}W$, $\pm 5\%$ tolerance unless otherwise noted k; $k\Omega$, M; $M\Omega$, (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance
2. CAPACITORS. Indicated in capacity (μF)/voltage (V) unless otherwise noted pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE. \square : DC voltage (V) at AC OUTLET ON. Value in (\square) is DC voltage at AC OUTLET OFF.
4. OTHERS: The **A** mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

SWITCHES:

- S1-1 : AC OUTLET (TIMER) ON - OFF
- S1-2 : AC OUTLET (OFF) ON - OFF
- S1-3 : AC OUTLET (ON) ON - OFF
- S2 : TIME ADJUST (FAST) ON - OFF
- S3 : TIME ADJUST (SLOW) ON - OFF
- S4 : TIME ADJUST (SEC RESET) ON - OFF
- S5 : TIME ADJUST (REV) ON - OFF
- S6 : MODE SLEEP - STAND-BY — ON — CLOCK — SECOND — CLOCK ADJ
- S7 : LINE FREQUENCY 50Hz - 60Hz
- S9 : LINE VOLTAGE SELECTOR 110V - 120V - 220V - 240V

The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

A

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D

1

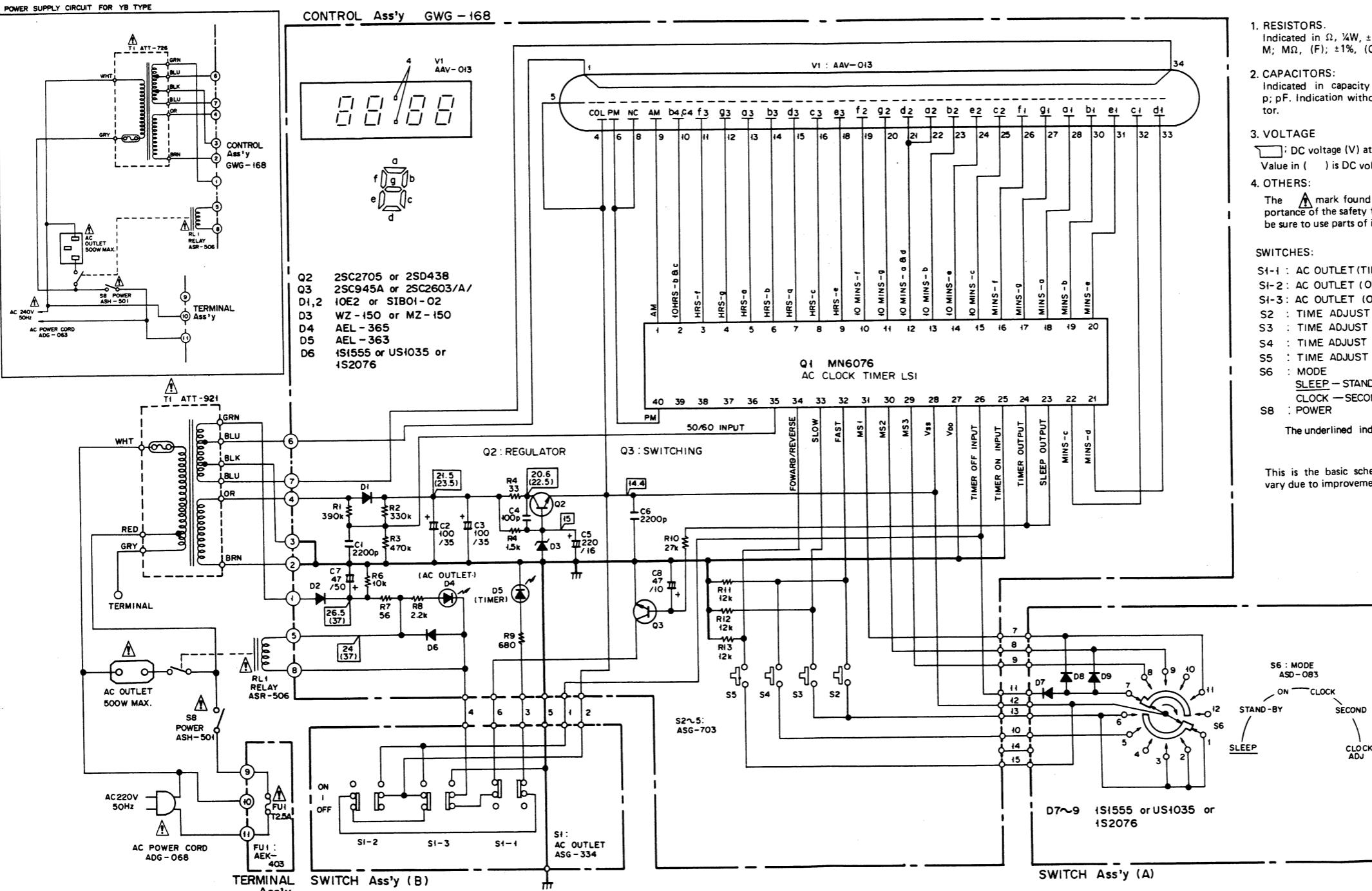
2

3

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5

■ NE, YB TYPES



NOTE:

The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

A

A

B

C

D

B

C

D

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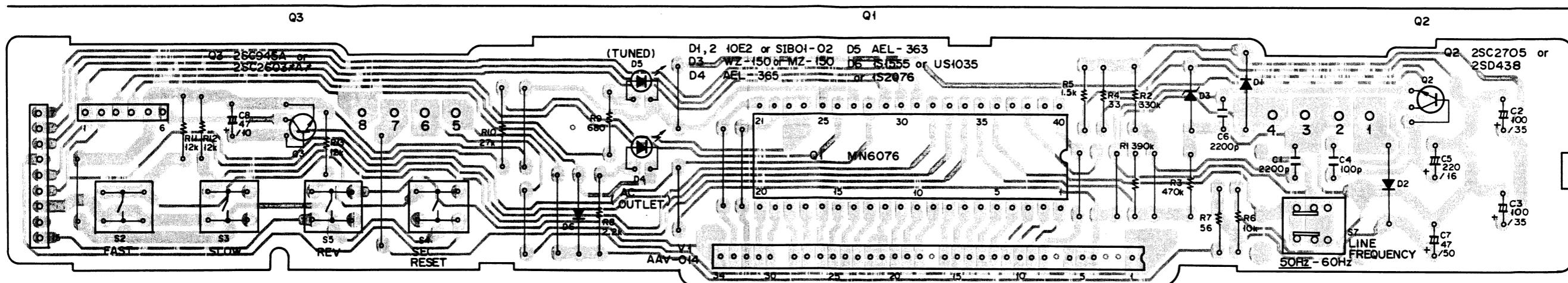
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6

5. P.C. BOARD ASSEMBLIES

■ CONTROL ASSEMBLY (GWG-169)



Service Manual

AUDIO DIGITAL TIMER

DT-530

S,S/G,YB,NE

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.

★★ GENERALLY MOVES FASTER THAN ★
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Mark	Symbol & Description	Part No.				
		KU type	S type	S/G type	YB type	NE type
	Timer assembly	GWG-167	GWG-169	GWG-169	GWG-168	GWG-168
	Cover	ANM-157	ANM-157	ANM-157	ANM-230	ANM-230
	AC socket (AC OUTLETS)	AKP-040	AKP-040	AKP-040	AKP-044	AKP-026
	S9 Line voltage selector	.....	.....	.....	.....	.....
	S8 Slide switch	.....	.....	.....	ASH-501	ASH-501
	Fuse	.....	.....	.....	.....	AEK-403
	Power transformer (120V)	ATT-722	.....	.....	.....	.....
	Power transformer (110V, 120V, 220V and 240V)	.....	ATT-724	ATT-724	.....	.....
	Power transformer (240V)	.....	.....	.....	ATT-726	.....
	Power transformer (220V)	.....	.....	.....	.....	ATT-921
	AC power cord	ADG-052	ADG-060	ADG-060	ADG-063	ADG-068
	Screw	.....	.....	.....	.....	PMZ30P040FZK
	Operating instructions	ARB-489	ARB-505	ARB-505	ARB-506	ARE-047
	Operating instructions (S)	.....	ARC-022	.....	.....	.....
	Packing case	AHE-032	AHE-032	AHE-032	AHE-067	AHE-067